

CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Previously Presented) An automated directory assistance system, comprising:
a speech recognition module configured to receive an audible request for a telephone number from a caller and generate a transcript from the audible request;
a listing retrieval module configured to retrieve a listing corresponding to the audible request from a database, the listing retrieval module being configured to use the transcript as a query, the database storing words previously included in requests for telephone numbers; and
an accept/reject module configured to determine whether to accept the listing retrieved by the listing retrieval module and present a telephone number corresponding to the accepted listing to the caller, the listing being rejected unless the transcript contains at least one of the stored words.
2. (Original) The system of claim 1, wherein the speech recognition module includes a large vocabulary speech recognizer.
3. (Original) The system of claim 1, wherein the speech recognition module is configured to use acoustic models and an n-gram grammar to recognize at least one word included in the audible request.
4. (Original) The system of claim 1, wherein the listing retrieval module includes a statistical information retrieval system.
5. (Canceled)
6. (Previously Presented) The system of claim 1, wherein the listing retrieval module is configured to rank a plurality of listings from the database.

7. (Previously Presented) The system of claim 1, wherein the accept/reject module is configured to identify at least one word that is required for the listing, determine whether the transcript contains the identified at least one required word, and accept the listing when the transcript contains the identified at least one required word.

8. (Previously Presented) The system of claim 1, wherein the accept/reject module is further configured to transfer the audible request to a human operator when the accept/reject module does not accept the listing.

9. (Previously Presented) The system of claim 1, further comprising:
a training system configured to automatically configure the speech recognition module, the listing retrieval module, and the accept/reject mode.

10. (Previously Presented) The system of claim 9, wherein the training system includes:
an acoustic model training module configured to estimate acoustic models from training transcripts relating to previous requests for the telephone numbers, the telephone numbers including the telephone number corresponding to the listing; and
a speech grammar estimation module configured to create an n-gram grammar for the telephone numbers, the speech recognition module using the acoustic models and the n-gram grammar to generate the transcript from the audible request.

11. (Previously Presented) The system of claim 9, wherein the training system includes:
a listings statistics estimation module configured to identify words used when requesting the telephone number, the listing retrieval module retrieving the identified words using the transcript.

12. (Previously Presented) The system of claim 9, wherein the training system includes:

a required words determination module configured to identify at least one word that is required to request the telephone number, the accept/reject module using the identified at least one required word to determine whether the listing is acceptable.

13. (Previously Presented) The system of claim 9, wherein the training system includes: a transcription module configured to automatically generate training transcripts corresponding to previous requests for the telephone numbers, the telephone numbers including the telephone number.

14. (Previously Presented) The system of claim 13, wherein the transcription module includes:

a grammar creation component configured to create a loose grammar corresponding to each of the telephone numbers, and

a speech recognition component configured to generate a training transcript for one of the previous requests for the telephone numbers using the loose grammar.

15. (Original) The system of 14, wherein the transcription module further includes: an accept/reject component configured to determine whether the generated training transcript is acceptable.

16. (Original) The system of claim 15, wherein the transcription module further includes: a verification/correction module configured to present the generated training transcript to a human for at least one of verification and modification.

17. (Previously Presented) A method for providing directory assistance, comprising: receiving an audible request for a telephone number from a caller; generating a transcript from the audible request;

retrieving a listing corresponding to the audible request from a database using the transcript as a query into the database, the database storing words previously included in requests for telephone numbers;

determining whether to accept the retrieved listing, the listing being rejected unless the transcript contains at least one of the stored words; and

presenting a telephone number corresponding to the accepted listing to the caller.

18. (Previously Presented) The method of claim 17, comprising:

estimating acoustic models from speech and training relating to requests for the telephone numbers; and

creating an n-gram grammar for the telephone numbers.

19. (Original) The method of claim 18, wherein the generating includes:

using the acoustic models and the grammar to recognize at least one word included in the audible request.

20. (Previously Presented) The method of claim 17, further comprising:

identifying words relating to each of the telephone numbers, the telephone numbers including the telephone number; and

storing the words in the database.

21. (Original) The method of 20, wherein the retrieving includes:

using the transcript as a query into database to retrieve the words relating to the telephone number.

22. (Previously Presented) The method of claim 17, wherein the retrieving includes:

retrieving a plurality of listings from the database, the listings corresponding to the audible request; and

ranking the plurality of listings.

23. (Previously Presented) The method of claim 17, wherein the determining includes:
identifying at least one word that is required for the listing,
determining whether the transcript contains the identified at least one required
word, and
accepting the retrieved listing when the transcript contains the identified at least one
required word.

24. (Previously Presented) The method of claim 17, comprising:
retrieving a plurality of listings corresponding to the audible request; and
transferring the audible request to a human operator when none of the plurality of
retrieved listings are accepted.

25. (Previously Presented) The method of claim 17, further comprising:
automatically generating training transcripts corresponding to previous requests for the
telephone numbers, the telephone numbers including the telephone number.

26. (Previously Presented) The method 25, wherein the automatically generating
includes:
creating a loose grammar corresponding to each of the telephone numbers, and
generating a training transcript for one of the previous requests for one of the telephone
numbers using the loose grammar.

27. (Original) The method of claim 26, wherein the automatically generating includes:
determining whether the generated transcript is acceptable.

28. (Original) The method of claim 27, wherein the automatically generating further
includes:
presenting the transcript to a human for at least one of verification and modification.

29. (Previously Presented) A system for providing automated directory assistance, comprising:

means for receiving a request for a telephone number from a caller;

means for generating a transcript from the request;

means for retrieving a listing corresponding to the request from a database using the transcript as a query, the database storing words previously included in requests for telephone numbers, the query including matching the transcript to the stored words;

means for determining whether to accept the retrieved listing; and

means for presenting a telephone number corresponding to the accepted listing to the caller.

30. (Previously Presented) A computer-readable medium that stores instructions executable by at least one processor to perform a method for providing directory assistance, comprising:

recognizing at least one word in an audible request for a telephone number received from a caller;

generating a transcript from the audible request;

retrieving at least one listing corresponding to the audible request from a database using the transcript as a query, the database storing words previously included in requests for telephone numbers, the query including matching the transcript to the stored words;

determining whether to accept one or more of the retrieved listings; and

presenting a telephone number corresponding to the accepted one or more listings to the caller.

31-52. (Canceled)

53. (Previously Presented) A method for providing a directory assistance service, comprising:

receiving a request for a telephone number from a caller, the request being spoken by the caller and including a location and listing corresponding to the telephone number;

using large vocabulary speech recognition to recognize at least one word spoken by the caller when making the request;

generating a transcript from the at least one word;

using statistical information retrieval and the transcript to identify a listing corresponding to the recognized word, including using the transcript as a query, the listings database storing words previously included in requests for telephone numbers, the query including matching the transcript to the stored words;

determining whether the listing is likely to be correct; and

providing a telephone number corresponding to the listing to the caller.

54. (Previously Presented) A method for providing a directory assistance service, comprising:

receiving a request for a telephone number from a caller, the request being spoken by caller and including a location and listing corresponding to the telephone number;

using large vocabulary speech recognition to recognize at least one word spoken by the caller when making the request;

generating a transcript from at least one word;

using statistical information retrieval and the transcript to identify a listing corresponding to the recognized word, the statistical information retrieval matching the transcript to words previously included in requests for telephone numbers; and

connecting the caller to a called party corresponding to the listing.

55. (Previously Presented) A method of providing directory assistance, comprising:

defining a set of words or phrases associated with a listing;

defining at least one required word associated with the listing;

receiving a request for a telephone number from a caller;

using speech recognition to generate a transcript from the audible request;

using the transcript to identify the listing as a potential match to the request, the listing being identified by using the transcript as a query into a database containing the set of words or phrases associated with the listing, the set of words or phrases associated with the listing being previously included in requests for telephone numbers;

determining whether the transcript includes the at least one required word associated with the listing;

accepting the listing when it is that the transcript includes a match for at least one of the at least one required word; and

rejecting the listing when it is determined that the transcript does not include a match for at one of the at least one required word.